

REMARKS

In view of the following remarks, reconsideration and further examination are requested.

Initially, the Examiner is respectfully requested to acknowledge Applicants' claim for Foreign Priority submitted August 29, 2001.

The specification and abstract have been reviewed and revised to make editorial changes thereto and generally improve the form thereof, and a substitute specification and abstract are provided. No new matter has been added by the substitute specification and abstract.

Claims 1-10 have been cancelled and claims 11-36 have been added. New claims 11-36 have been drafted taking into account the 35 U.S.C. § 112, second paragraph, concerns expressed by the Examiner in the Office Action mailed March 17, 2003, are believed to be free of these concerns, and are otherwise believed to be in compliance with 35 U.S.C. § 112, second paragraph.

The instant invention pertains to a method for assembling an integral electronic device, and the integral electronic device assembled by the method.

With reference to Figures 1-5, for example, the method comprises holding an electronic component 103 in an opening 102 that extends completely through a thickness of a first board 101, and then electrically connecting a second board 105 to the electronic component so as to provide an integral electronic device including the first board, the electronic component and the second board. Claim 11 is believed to be representative of this method, and claim 24 is believed to be representative of the integral electronic device assembled by performing this method.

In the Office Action mailed March 17, 2003, the Examiner rejected claims 1 and 3-6 under 35 U.S.C. § 102(e) as being anticipated by Bertin et al. The Examiner rejected claims 1 and 3-5 under 35 U.S.C. § 102(a) as being anticipated by Kelkar et al. The Examiner rejected claims 7-10 under 35 U.S.C. § 103(a) as being unpatentable over Bertin et al. in view of Kuczynski. The Examiner rejected claims 7-9 under 35 U.S.C. § 103(a) as being unpatentable over Kelkar et al. in view Kuczynski. And, the Examiner rejected claim 2 under 35 U.S.C. § 103(a) as being unpatentable over Kelkar et al. in view of Brofman et al. These rejections are respectfully traversed in part, and the references relied upon by the Examiner are not applicable with regard to the newly added claims for the following reasons.

New independent claim 11 recites a method for assembling an integral electronic device, comprising

in an opening that extends completely through a thickness of a first board, holding an electronic component... and electrically connecting a second board to said electronic component...

Similarly, independent claim 24 recites an integral electronic device that comprises

a first board having an opening that extends completely through a thickness of said first board... an electronic component held within said opening... and a second board electrically connected to said electronic component.

Such a method for assembling an integral electronic device, and such an integral electronic device are not taught or suggested by any of the references relied upon by the Examiner.

In this regard, while Bertin et al. does disclose an electronic component 148 held within an opening 144 of a first board 142 with a second board 140 electrically connected to the electronic component, and while Kelkar et al. does disclose an electronic component 306 held within an opening of a first board 302 with a second board 316 electrically attached to the electronic component, in each of Bertin et al. and Kelkar et al. the corresponding opening does not extend "completely through" the first board. Accordingly, neither independent claim 11 nor independent claim 24 are anticipated by either one of Bertin et al. and Kelkar et al. Additionally, there would have been no motivation to have the openings of Bertin et al. and Kelkar et al. extend completely through their corresponding first boards. Thus, claims 11 and 24 are allowable over each of these references taken alone.

Kuczynski and Brofman et al. fail to resolve the above deficiencies of Kelkar et al. and Bertin et al., and accordingly, claims 11 and 24 are also allowable over any combination of these four references. Thus, claims 11-35 are allowable.

Additionally, certain of the dependent claims are believed to be patentable in their own right. In this regard, new claims 21 and 33 require that the electronic component is held

(with)in said opening via an insulating resin that surrounds said electronic component except for upper and lower surfaces of said electronic component.

Such a feature is not taught or suggested by any of the references relied upon by the Examiner. Thus, claims 21 and 33 are each patentable in its own right.

Additionally, each of claims 22 and 34 is believed to be patentable in its own right because each of these claims requires a third board that is electrically connected to the lower surface of the electronic component. Such a feature is not taught or suggested by any of the references relied upon by the Examiner, and accordingly, claims 22 and 34 are each patentable in its own right.

And, each of claims 23 and 35 requires that the first board has at least two openings that extend therethrough, with these openings being parallel to one another. Such parallel openings are not taught or suggested by any of the references relied upon by the Examiner, and accordingly, each of claims 23 and 35 is patentable in its own right.

Because claim 36 depends from claim 11, it is respectfully submitted that claim 36 is allowable for the same reasons that claim 11 is allowable.

Please note that the above remarks correspond to the remarks filed June 17, 2003, except that reference is now made to new claim 36 as well. The remarks filed June 17, 2003, are believed to be fully responsive to the rejection mailed March 17, 2003, and accordingly, the remarks provided herewith are also believed to be fully responsive to the rejection mailed March 17, 2003.

In view of the above remarks, it is respectfully submitted that the present application is in condition for allowance and an early Notice of Allowance is earnestly solicited.

If after reviewing this Response, the Examiner believes that any issues remain which must be resolved before the application can be passed to issue, the Examiner is invited to contact the Applicants' undersigned representative by telephone to resolve such issues.

Respectfully submitted,

Kazushi HIGASHI et al.

By:

Joseph M. Gorski

Registration No. 46,500

Attorney for Applicants

JMG/edg
Washington, D.C. 20006-1021
Telephone (202) 721-8200
Facsimile (202) 721-8250
February 6, 2004